

## DAVIS EXPEDITION FUND

### REPORT ON EXPEDITION / PROJECT

**Expedition/Project Title:** Expedition on Gesneriaceae taxa from Sri Lanka

**Travel Dates:** 23<sup>rd</sup> October to 14<sup>th</sup> December 2014

**Location:** Sri Lanka

**Group Members:** Subhani Ranasinghe

**Aims:**  
The aim of this expedition was the collection of necessary samples of Gesneriaceae taxa from *Sri Lanka* to study taxonomy and phylogeny of Sri Lankan Gesneriaceae and to study biogeography of gesneriaceae taxa between Sri Lanka and South India

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#### **Outcome (not less than 300 words):-**

##### **Introduction**

This proposed field work conducted in Sri Lanka during 23<sup>rd</sup> October to 05<sup>th</sup> December in 2014. This expedition covered 12 field expeditions including 21 days in various parts of the country based on previous collections and my own field experience on Gesneriaceae distribution. The original proposal aimed to conduct field work in both South India and Sri Lanka. However, the Indian permits were not available in last year and therefore it was decided to conduct field studies only in Sri Lanka to collect necessary samples. The proposed budget included funding from three sources, James Rennie Bequest Fund (£ 500), Davis Expedition Fund (£ 2500) and Royal Horticultural Society (£ 850); a total of £ 3850.00. While the latter two funding's received the James Rennie Bequest was unsuccessful. Therefore, only the Davis Expedition fund utilized for Sri Lankan field work and the RHS funds were kept on hold until we receive the Indian permits.

Later it was decided to increase sampling for 3 taxa named, *Henckelia communis* morphotype 1, *Henckelia communis* morphotype 2 and *Henckelia angusta* for population genetics studies based on preliminary phylogeny produced on ITS sequence data. It was also planned to collect 10-15 individuals per population into 5-10 populations from each of these 03 taxa to represent their genetic diversity and distribution. Therefore, the initial 2 weeks field plan in Sri Lanka with 5 expeditions in 10 days extended to 12 expeditions in 21 days in Sri Lanka.

### **Methodology**

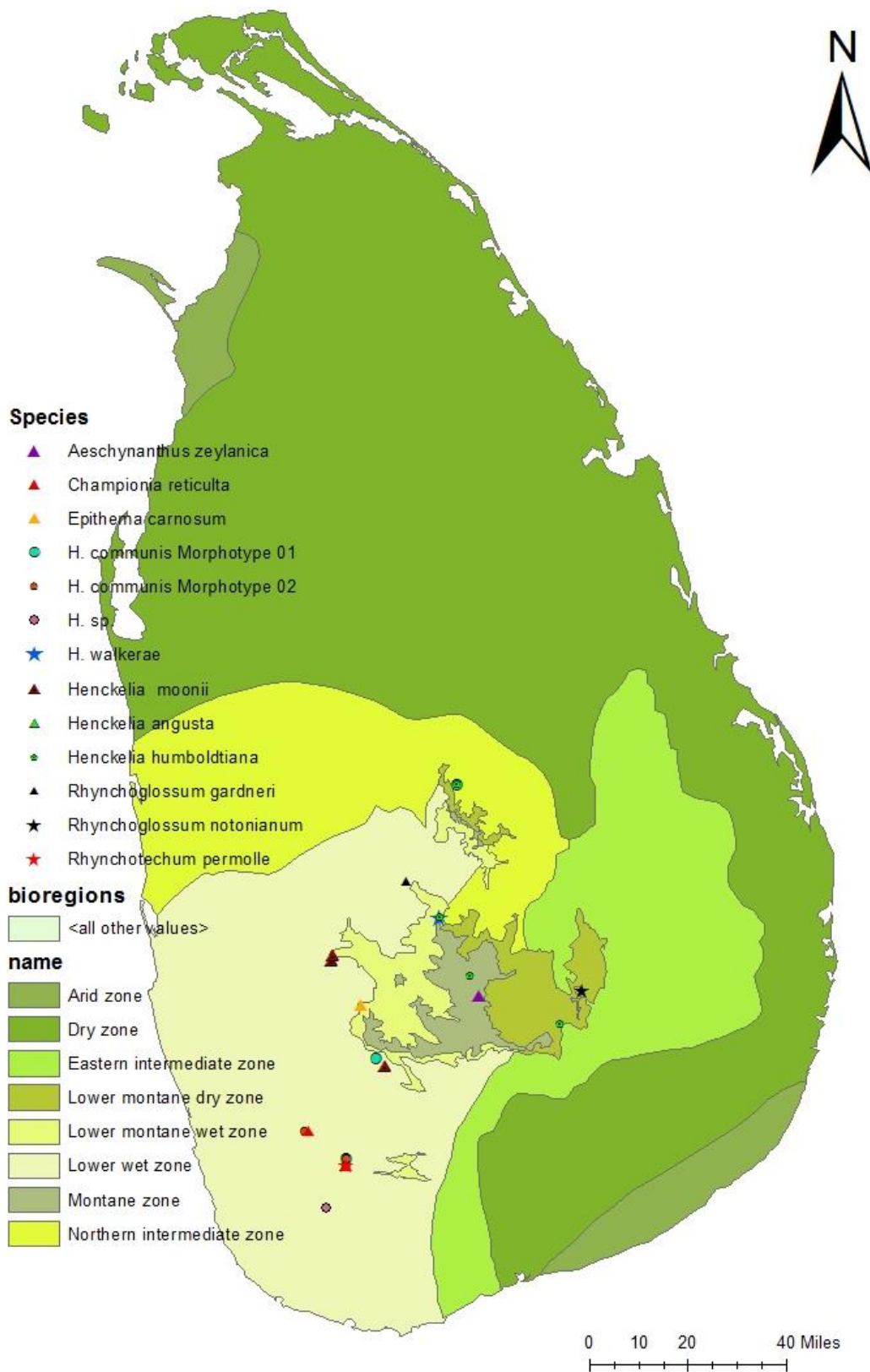
*Henckelia communis* morphotype 1, *Henckelia communis* morphotype 2 and *Henckelia angusta* sampled to collect leaf material for population genetics studies.

Three DNA samples were collected per each population from rest of the species for phylogenetic studies. Up to three individuals from the same populations sampled for flowers/fruits/stem nodes for detail taxonomic work. These flowers, seed and stem samples were fixed in FAA solution soon after collection and transferred to 40% alcohol solution a day before travelling back to Edinburgh.

Herbarium specimens also collected in 02 or 03 to deposit in the local herbarium and to be study and deposit in the herbarium (E), Royal Botanic Gardens, Edinburgh and preserved in newspaper bundles with alcohol and dried at National Herbarium in Sri Lanka. All collections were enriched with digital photos and precise GPS coordinates. Table 01 gives a summary of field expedition with details on collected taxa.

A special attention paid on collecting data on taxonomic characters with digital photographs in the field to distinguish taxa showing clear discrimination in the preliminary phylogeny;

- *Henckelia communis* type 1 and 2 and *Henckelia angusta*
- *Henckelia humboldtiana* type 1 and 2
- *Henckelia walkerae* and *Henckelia* sp.



**Location data of the field collections on Gesneriaceae taxa in the bio-regions map of Sri Lanka**

## Results

Thirty individuals from three populations of *Henckelia communis* morphotype 01, twenty individuals from four populations of *Henckelia communis* morphotype 02 and 12 individuals from one population of *Henckelia angusta* collected for population genetics studies. Altogether there were 40 herbarium specimens, 81 leaf samples in silica, 47 flowers samples, 56 seed samples and 42 stem samples were collected from 14 taxa of Sri Lankan Gesneriaceae, *Henckelia communis* morphotype 1, *Henckelia communis* morphotype 2, *Henckelia angusta*, *Henckelia moonii*, *Henckelia zeylanica*, *Henckelia walkerae*, *Henckelia humboldtiana* morpho type 1, *Henckelia humboldtiana* morpho type 2, *Aeschynanthus ceylanicus*, *Epithema zeylanicum*, *Rhynchotechum permolle*, *Rhynchoglossum gardneri* and *Rhynchoglossum notonianum*.

02-05 flowers or pods and 02-03 mature and young stem nodes from each individual collected for each sample in spirit collections for detail taxonomic work on flowers, seed and stem nodes.



***Aeschynanthus ceylanicus***: An epiphytic Gesneriaceae collected from upper Montane Zone in Sri Lanka at 1810 m altitude.



***Championia reticulata***: Only species recorded from the monotypic genus *Championia* from Sri Lanka, observed and collected from low land forests to sub montane forests with an elevation range from 100-1200 meters.



Two distinct morphological types recorded from acaulescent *Henckelia humboldtiana* A and B



Caulescent forms of two *Henckelia* species; *Henckelia walkerae* and *Henckelia walkerae* var *alba* (*Henckelia* sp.)



*Henckelia communis* morpo type 1(A), 2(B) and *Henckelia angusta*(C) collecting samples for population work since no discrimination in the preliminary phylogeny

**Table 1** Summary of field expedition with different taxa collected.

Date/s	No of days	Location	Species Recorded	Species in which samples collected
<b>07/10/2014-08/10/2014</b>	<b>2.0</b>	<b>Travel to Sri Lanka</b>		
11/10/2014-14/10/2014	<b>4.0</b>	Arranging field work and purchasing chemicals		
23/10/2014	<b>1.0</b>	Reverston, Knuckles Conservation, Matale district	<i>Henckelia communis</i> (GL), <i>Henckelia humboldtiana</i> , <i>Rhynchoglossum gardneri</i> , <i>Rhynchotechum permolle</i>	<i>Henckelia communis</i> (GL), <i>Henckelia humboldtiana</i>
25/10/2014-26/10/2014	2.0	Travel Colombo to submit export permits to the Forest Department and the Department of Wild Life		
28/10/2014	<b>1.0</b>	Amanawala-Ampana Forest Reserve, Yatiyanthota	<i>Henckelia moonii</i>	<i>Henckelia moonii</i>
30/10/2014	<b>1.0</b>	Loolkondara, Deltota	<i>Henckelia humboldtiana</i> , <i>Henckelia walkerae</i>	<i>Henckelia humboldtiana</i> , <i>Henckelia walkerae</i>
15/11/2014 to 16/11/2014	<b>2.0</b>	Morapitiya Forest Reserve, Athwelthota, Kalutara	<i>Henckelia Ccommunis</i> (RL), <i>Championia reticulata</i> , <i>Rhynchotechum permolle</i>	<i>Henckelia communis</i> (RL), <i>Championia reticulata</i>
18/11/2014	<b>1.0</b>	Namunulula, Badulla	<i>Rhynchoglossum notonianum</i>	<i>Rhynchoglossum notonianum</i>
19/11/2014-20/11/2014	<b>2.0</b>	Windsor Forest, Dolosbage	<i>Henckelia communis</i> (GL), <i>Epithema carnosum</i> , <i>Rhynchotechum permolle</i>	<i>Henckelia floccosa</i> was not recorded in all possible habitats surrounding the original type location.

21/11/2014-23/11/2014	3.0	Sinharaja Forest Reserve	<i>Henckelia communis</i> (RL), <i>Henckelia angusta</i> , <i>Henckelia communis</i> (GL), <i>Rhynchotechum permolle</i> , <i>Championia reticulata</i>	<i>Henckelia communis</i> (RL), <i>Henckelia angusta</i> , <i>Henckelia communis</i> (GL), <i>Rhynchotechum permolle</i> , <i>Championia reticulata</i>
25/11/2014-26/11/2014	2.0	Nuwara Eliya	<i>Henckelia humboldtiana</i> , <i>Aeschynanthus zeylanica</i>	<i>Henckelia humboldtiana</i> , <i>Aeschynanthus zeylanica</i>
28/11/2014-30/11/2014	3.0	Kanneliya, Galle	<i>Henckelia sp.</i> , <i>Henckelia communis</i> (RL), <i>Championia reticulata</i>	<i>Henckelia sp.</i> , <i>H. communis</i> and <i>Championia reticulata</i>
02/12/2014-03/12/2014	2.0	Peak Wilderness sanctuary	<i>Epithema zelanicum</i> , <i>Henckelia zeylanica</i>	<i>Epithema zelanicum</i> , <i>Henckelia zeylanica</i>
05/12/2013	1.0	Dehena Ella and Gloxing falls, Helakande, Balangoda	<i>Henckelia moonii</i> , <i>Henckelia communis</i> (GL)	<i>Henckelia moonii</i> , <i>Henckelia communis</i> (GL)
08/12/2014-10/12/2014	3.0	Processing export permit and agreement with Forest Department and Department of Wild Life, Colombo and University of Peradeniya		
14/12/2014	1.0	Rawana Water falls, Ella, Badulla	<i>Henckelia humboldtiana</i>	<i>Henckelia humboldtiana</i>
22/12/2014	1.0	Export permit sorted from the department of wild life		
23/12/2014	1.0	Export permit sorted from the department of Forest		
30/12/2014-31/12/2014	2.0	Travel back to Edinburgh		



**References:**

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